COVID-19: What's New for August 7, 2020

IHME's latest COVID-19 forecasts indicate that the US will reach nearly 300,000 deaths by December 1, 2020. If mask wearing in public increases to 95%, more than 66,000 lives could be saved.

Other major findings include:

1. **Infections decreasing in some hot spots**: Florida, Texas, California, and Arizona have brought effective R below 1. Cases and hospitalizations have peaked but deaths are still rising. We expect deaths to rise for another week and then level off. The peaking of transmission in these states appears to be driven by the combination of local mandates for mask use and bar and restaurant closures, along with more cautious behaviors from the public. Media reports of increasing case numbers and deaths seems to be associated with more cautious behavior by the individuals in these communities in response to these trends. This will be an important mechanism throughout the coming year and will likely lead to oscillations in the epidemic in various states.
2. **New hot spots**: Based on cases, hospitalizations, and deaths, transmission of COVID-19 is increasing in 11 states: Colorado, Idaho, Kansas, Kentucky, Mississippi, Missouri, Ohio, Oklahoma, Oregon, Virginia, and Wisconsin. These states may experience increasing cases for several weeks. We hope to see a behavioral response toward more cautious behavior in these states soon.
3. **Mask use increasing thanks to mandates, penalties, and messaging**: Since July 15, 12 states have added mask mandates. Our statistical analysis of mask mandates suggests that a mandate with no penalties is associated with an 8 percentage point increase of mask use, and a mandate with penalties is associated with a 15 percentage point increase. These efforts and public information have led to an increase in the US rate of mask wearing by about 5 percentage points since mid-July. Mask wearing increases have been larger in states with larger epidemics.
4. **Test, trace, and isolate likely no longer feasible in many states**: The population protective effect of testing, which is meant to capture the impact of a test, contact trace, and isolate strategy is estimated in the model by examining the relationship between testing per capita and effective R. The strength of this relationship is getting weaker over time. In settings with large-scale transmission, test, trace, and isolate strategies are likely infeasible because of the huge volume of contacts. These strategies are likely more important in settings where other measures such as mask wearing or mandates have reduced transmission to quite low levels.
5. **Transmission likely to increase in winter months**: Our estimate of the effect of seasonality remains large, implying that we should expect to see a substantial increase in transmission, all other things being held equal, in the winter months. The large number of forecasted deaths that we estimate in the month of November in the reference scenario, nearly 45,000 deaths in one month, is driven substantially by this seasonal increase in transmission potential along with an assumption of further relaxation of mandates.
6. **23 states likely need to re-impose mandates before December 1**: In our model, we assume that states will re-impose a package of mandates including non-essential business closures and stay-at-home orders when the daily death rate reaches 8 per million. This threshold is based on the 90th percentile of when states/locations imposed mandates in March and April. This threshold implies that many states will have to reimpose mandates. If they do not, the number of infections and

deaths can be much higher, and this is captured by our mandates easing scenario. More specifically, our model suggests that the following states will be at the point where they will need to reconsider re-imposing mandates:

a. August: Arizona, Florida, Mississippi, South Carolina
b. September: Georgia, Texas
c. October: Colorado, Kansas, Louisiana, Missouri, Nevada, North Carolina, Oregon
d. November: Alabama, Arkansas, California, Iowa, New Mexico, Ohio, Oklahoma, Utah, Washington, and Wisconsin.

If mask use is increased to 95%, the re-imposition of stricter mandates can be delayed 6-8 weeks on average.

7. **We may be over-estimating the impact of schools re-opening on transmission**: We currently assume that 50% of school districts in each state will opt for online instruction only. As data emerge on actual decisions, we will incorporate this into future revisions of our model. We also assume the impact of school re-openings on mobility will be of the same magnitude as the impact of school closures in March, but in the opposite direction. Given mask use, likely restrictions on after-school activities, and avoidance of social engagement related to schools by some parents, our estimated impact of school openings may be overly pessimistic.
8. **Lack of data sharing by the US government hampers our research:** Our understanding of the drivers of the pandemic beyond mask use, mobility, testing, and seasonality is hampered by the lack of access to data. US CDC has many relevant datasets on the pandemic that they have refused to share with the research community. The switch of data reporting from US CDC to the US HHS has had little impact on our models since neither group is sharing much of their data with the research community. Some data that are critical to monitoring the response to the pandemic, such as mask use, are only collected through private-sector initiatives such as surveys conducted by Facebook, Premise, and SurveyMonkey. Federal government efforts to fill these critical data gaps have been limited to date.

Figures related to these findings may be found here. The new death projections and other information, such as hospital resources usage, are available at https://covid19.healthdata.org.

COVID-19 Results Briefing: United States of America

Institute for Health Metrics & Evaluation (IHME)

07 August 2020

This short briefing contains summary information on the latest projections from the Institute for Health Metrics and Evaluation (IHME) model on COVID-19 in United States of America.

Current Situation

Figure 1. Reported daily COVID-19 cases

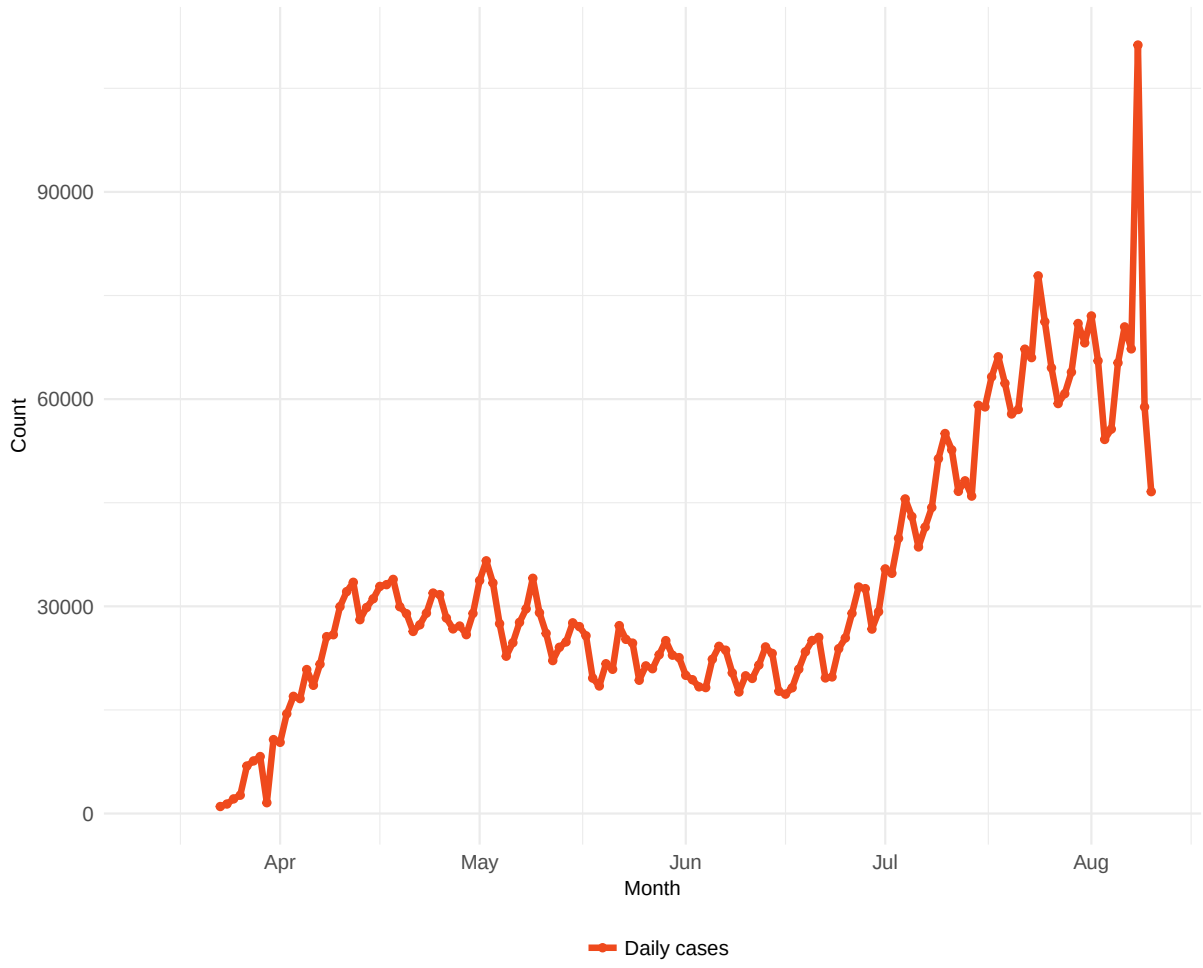


Figure 2. Reported daily COVID-19 deaths and smoothed trend estimate

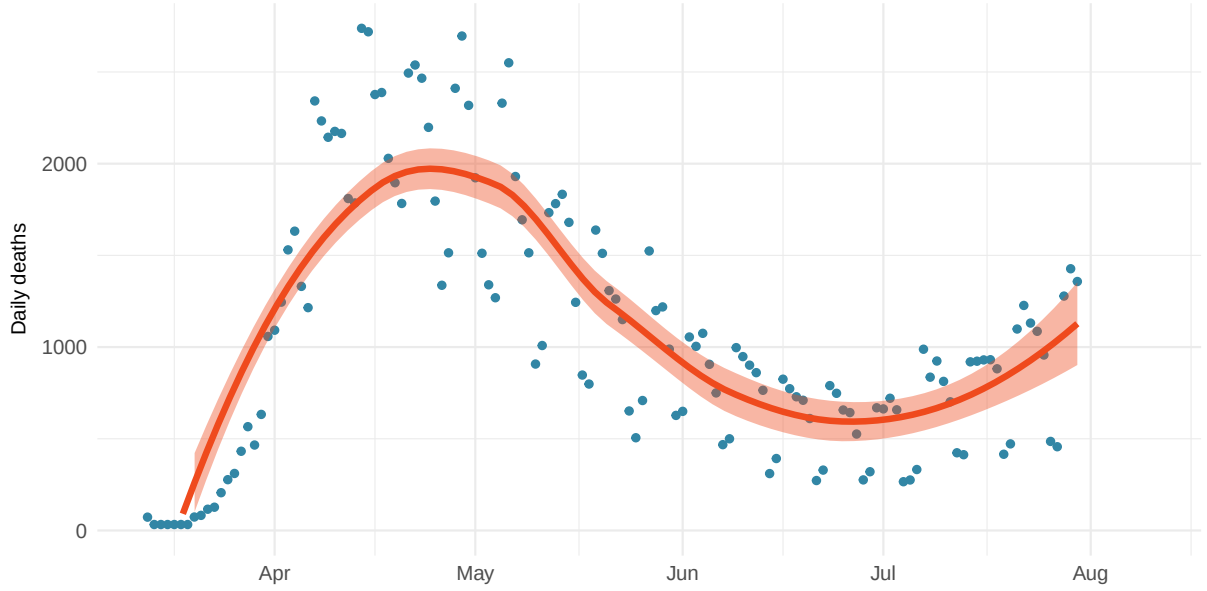


Figure 3. Estimated distribution of cumulative COVID-19 deaths by age group

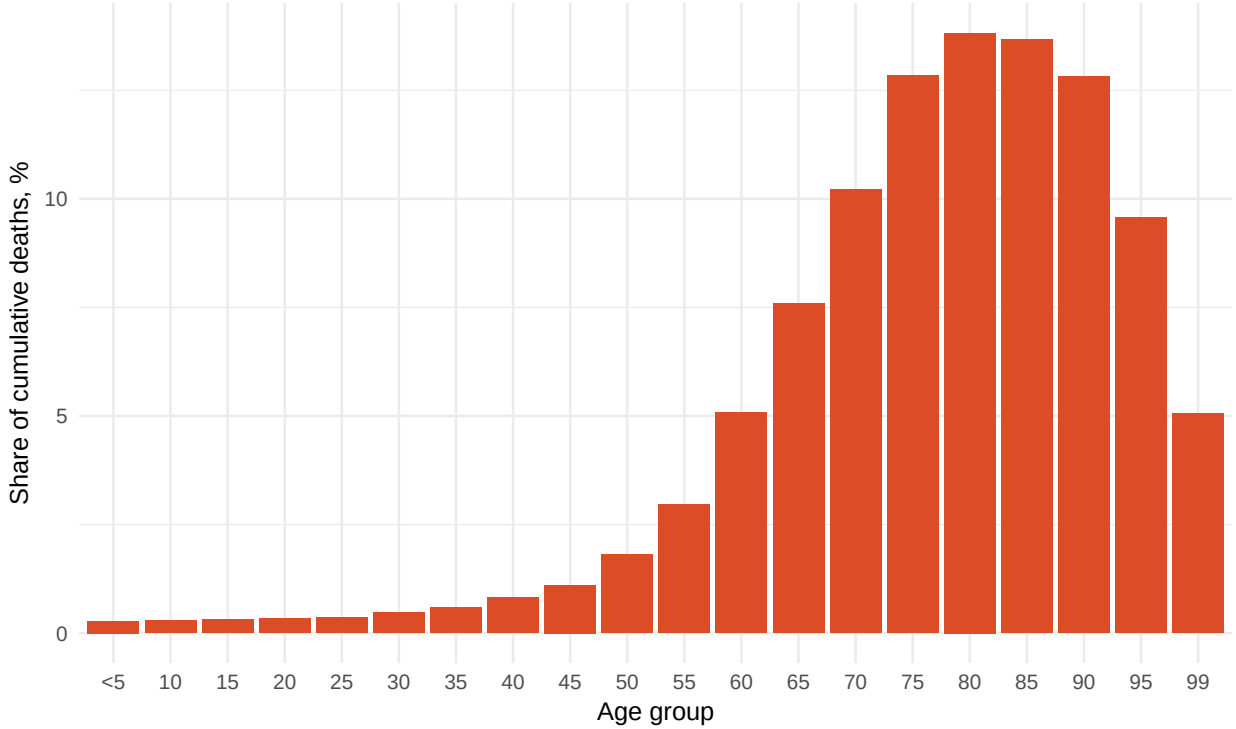


Figure 4. Mean effective R on 2020-07-23. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases reflect infections 11-13 days prior so estimates of effective R can only be made for the recent past. Effective R less than 1 means that transmission should decline all other things being held the same.

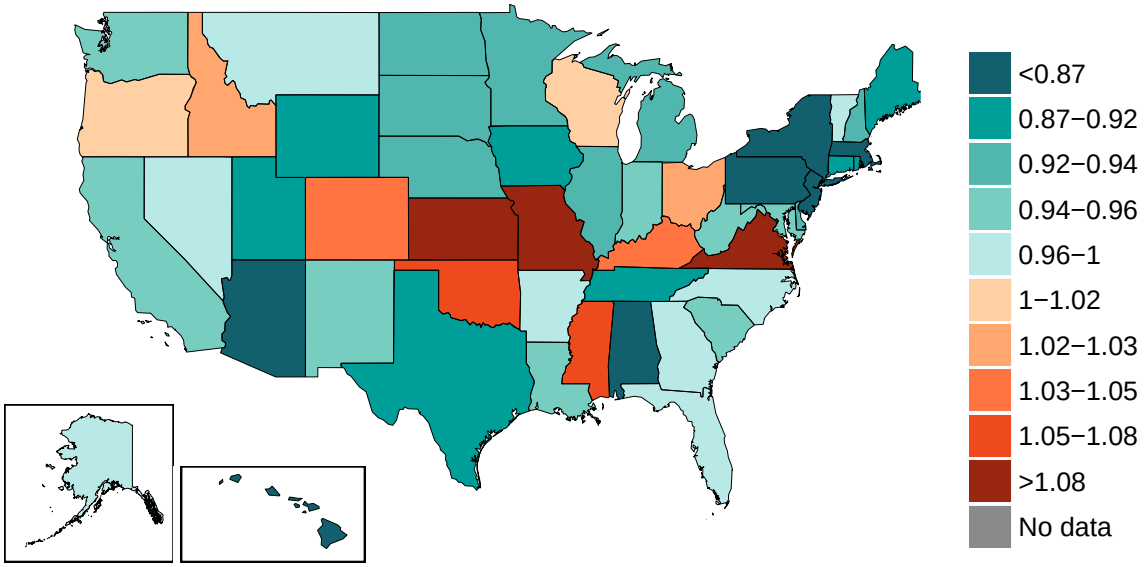


Figure 5. Estimated percent infected with COVID-19 on August 03, 2020

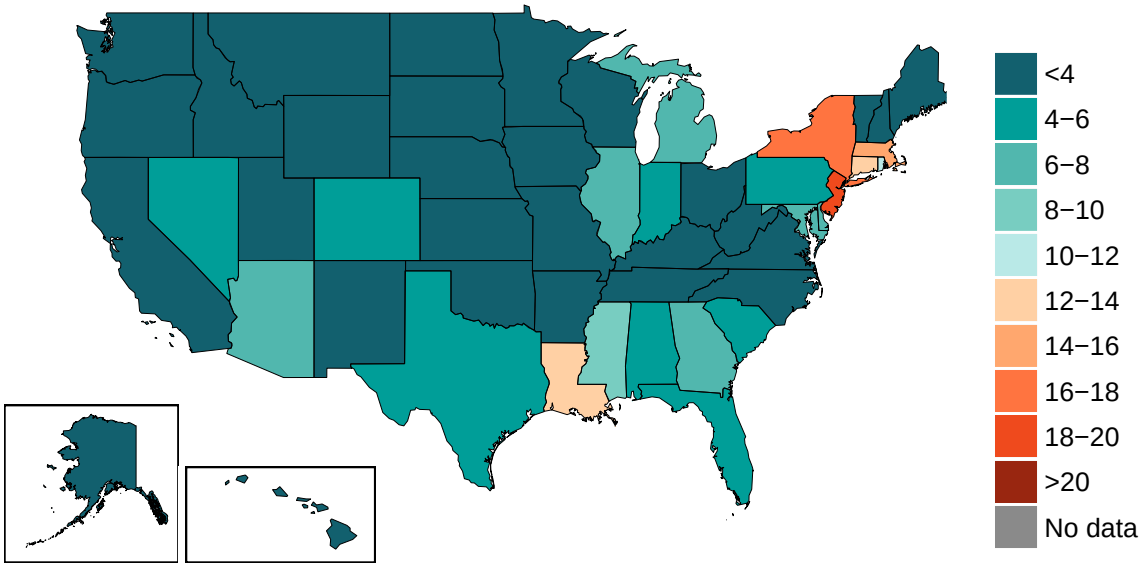


Figure 6. Percent of COVID-19 infections detected. This is estimated as the ratio of reported COVID-19 cases to estimated COVID-19 infections based on the SEIR model.

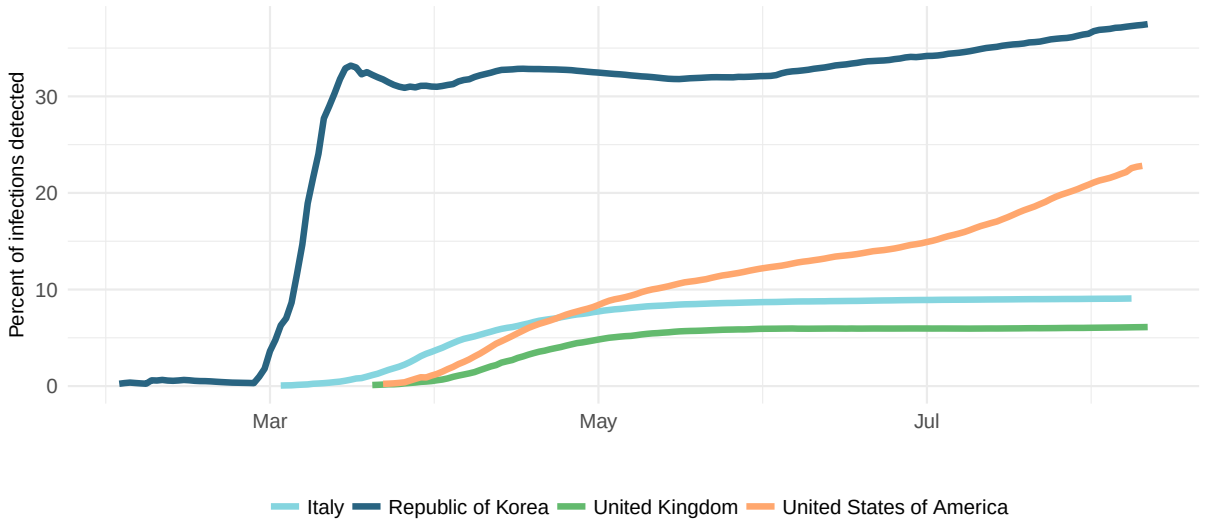
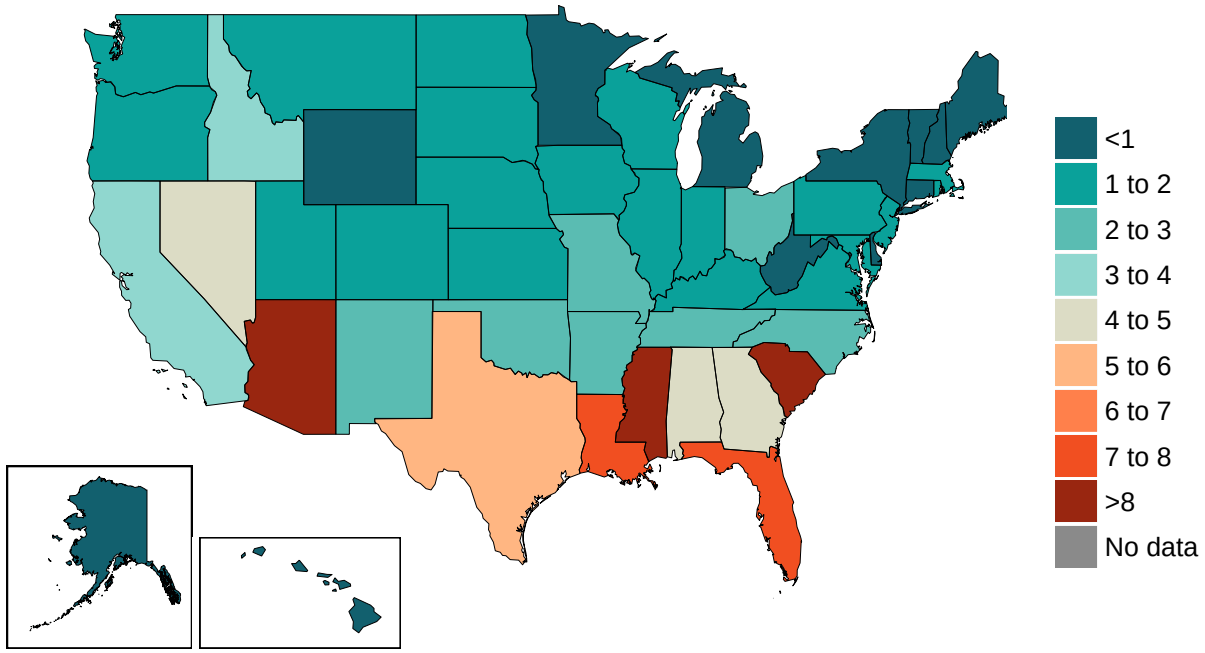


Figure 7. Daily COVID-19 death rate per 1 million on August 03, 2020



Critical Drivers

Table 1. Current mandate implementation

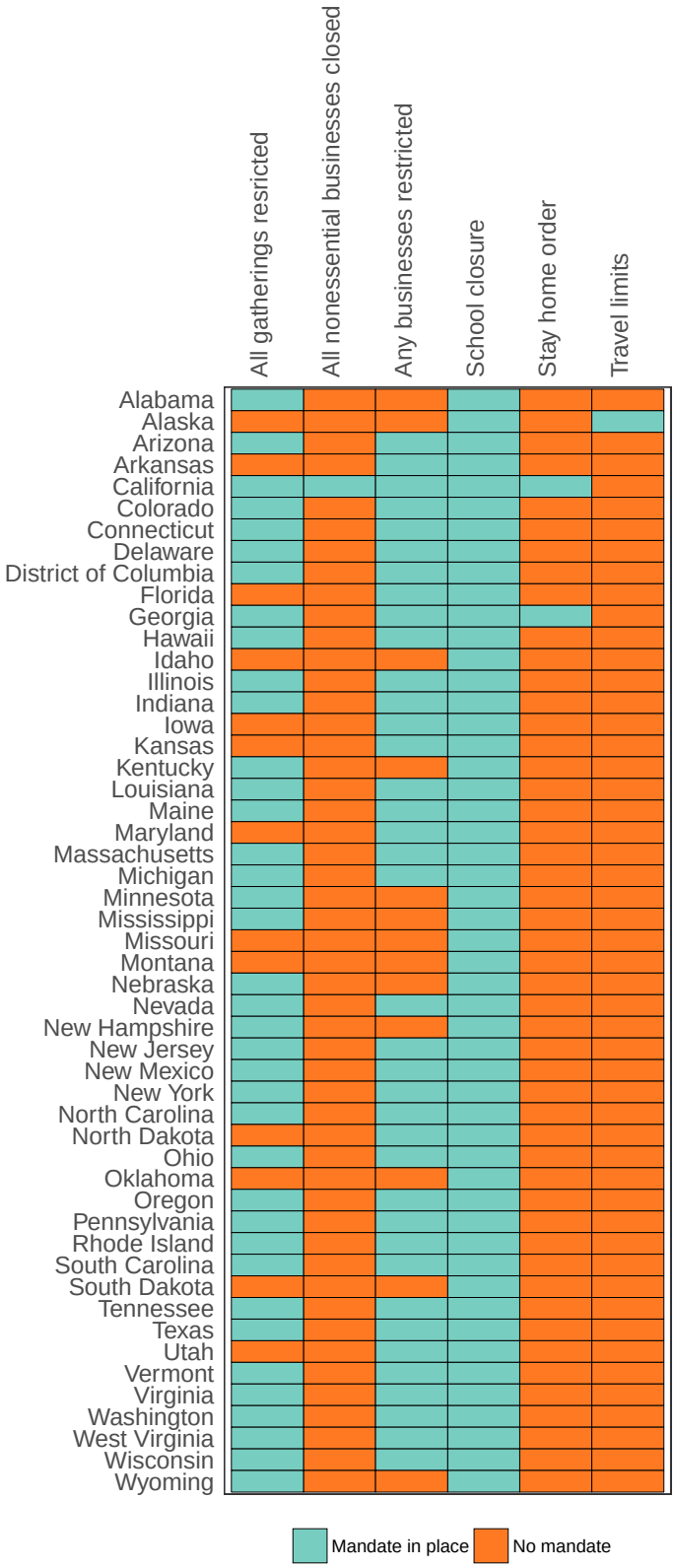


Figure 8. Total number of mandates

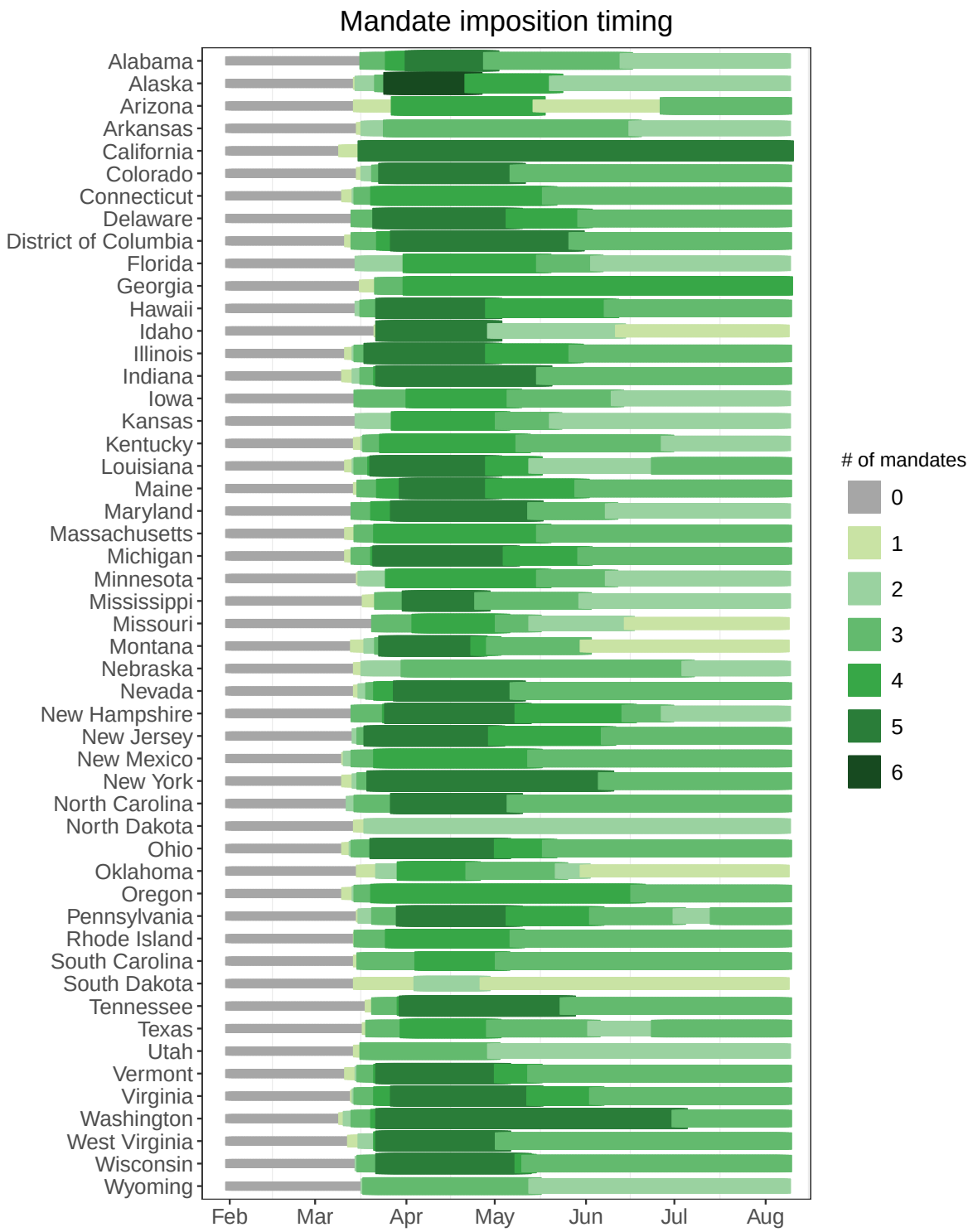


Figure 9a. Trend in mobility as measured through smartphone app use compared to January 2020 baseline

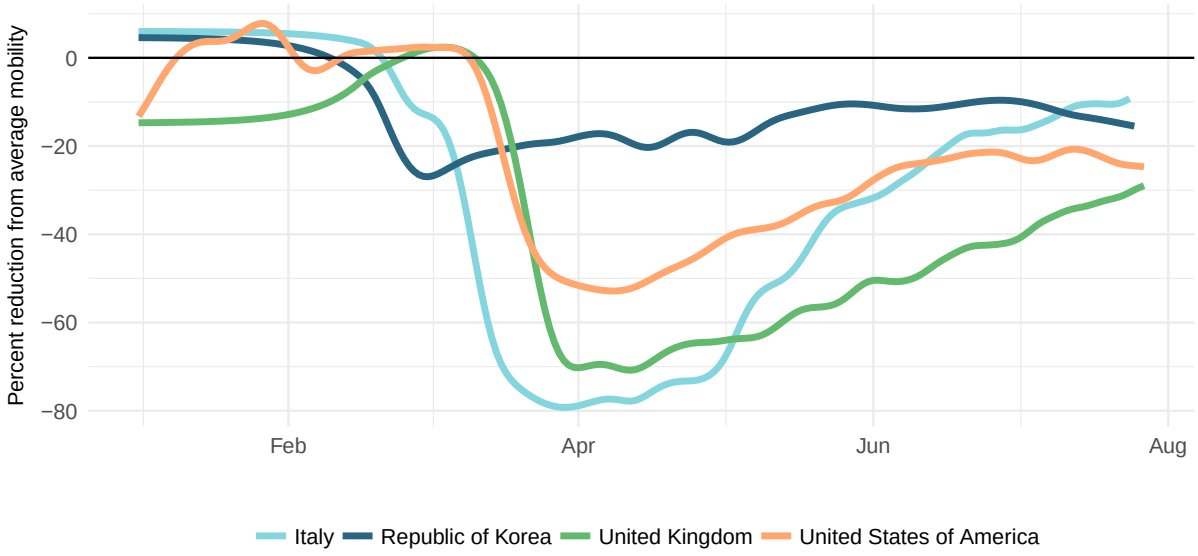


Figure 9b. Mobility level as measured through smartphone app use compared to January 2020 baseline (percent)

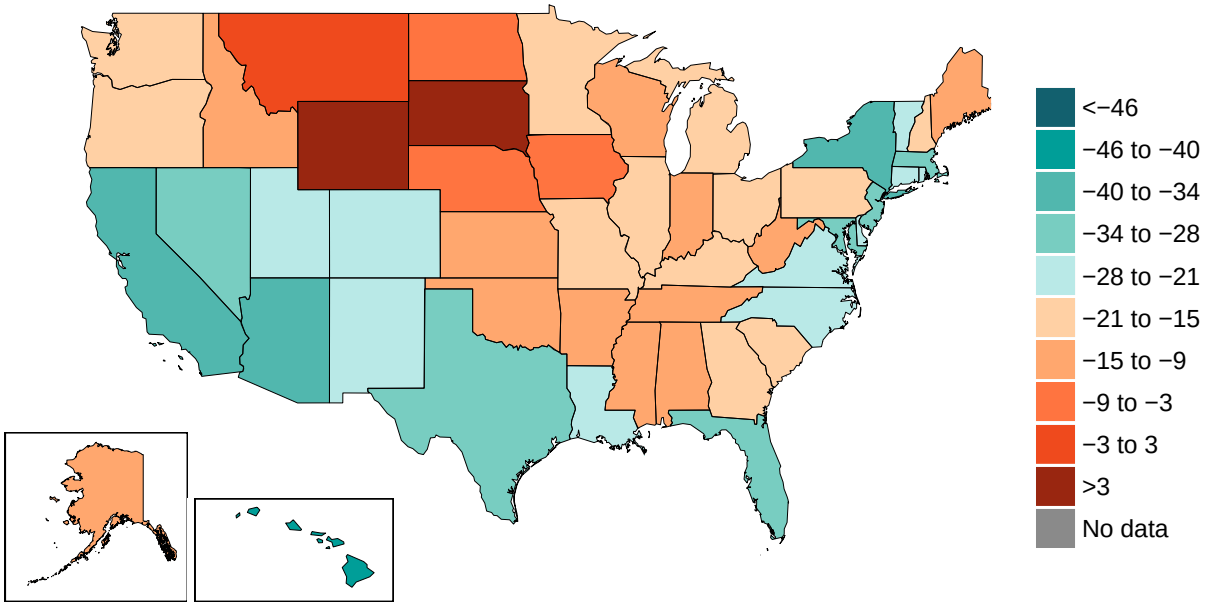


Figure 10a. Trend in the proportion of the population reporting always wearing a mask when leaving home

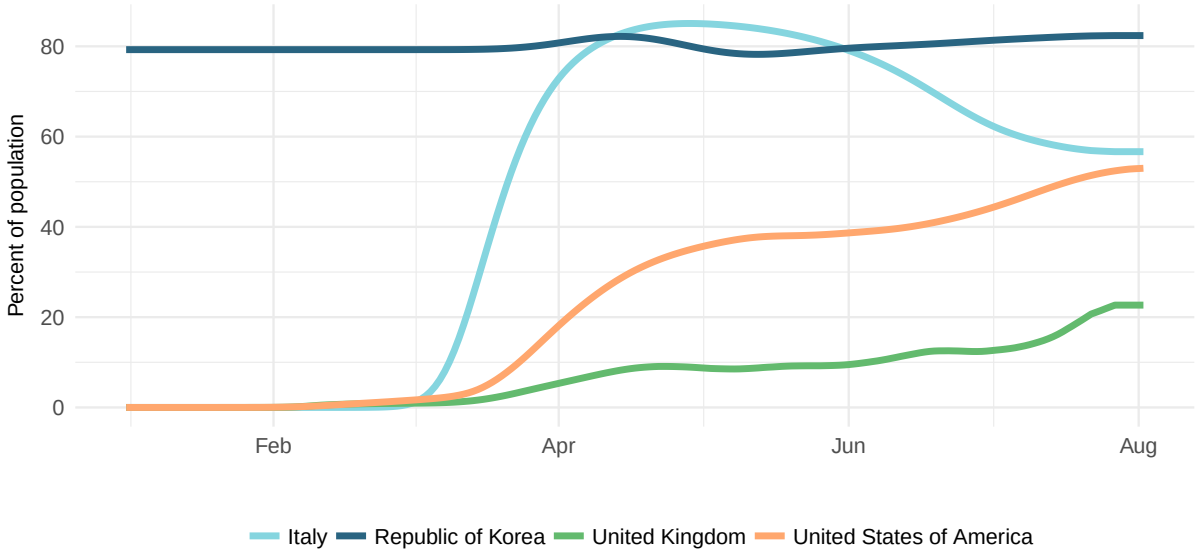


Figure 10b. Proportion of the population reporting always wearing a mask when leaving home on August 03, 2020

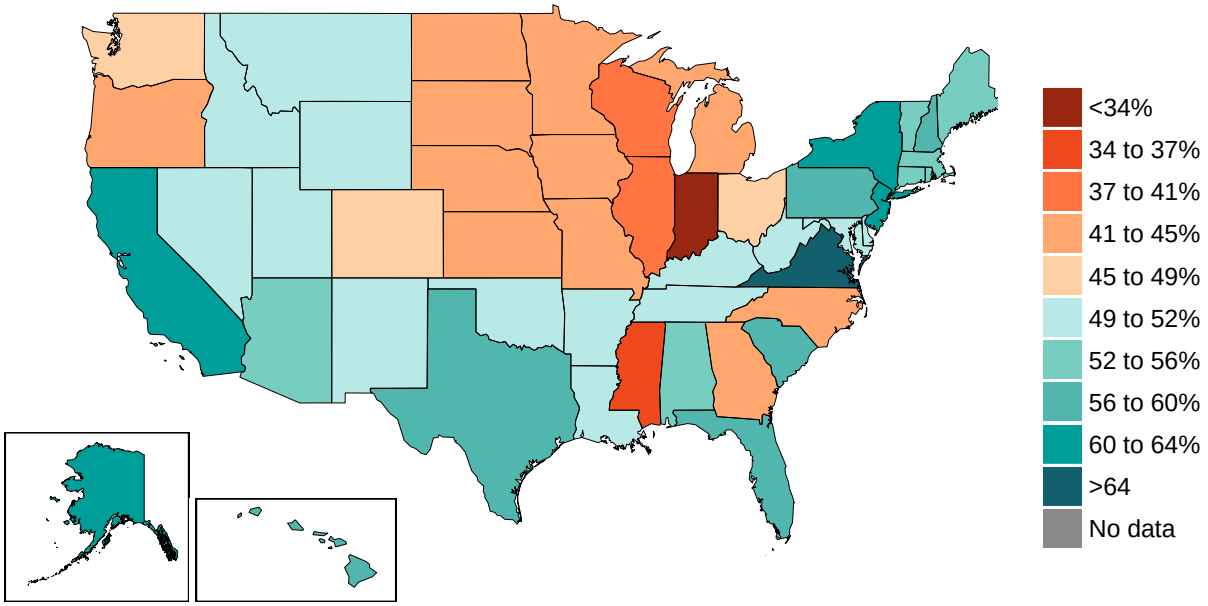


Figure 11a. Trend in COVID-19 diagnostic tests per capita

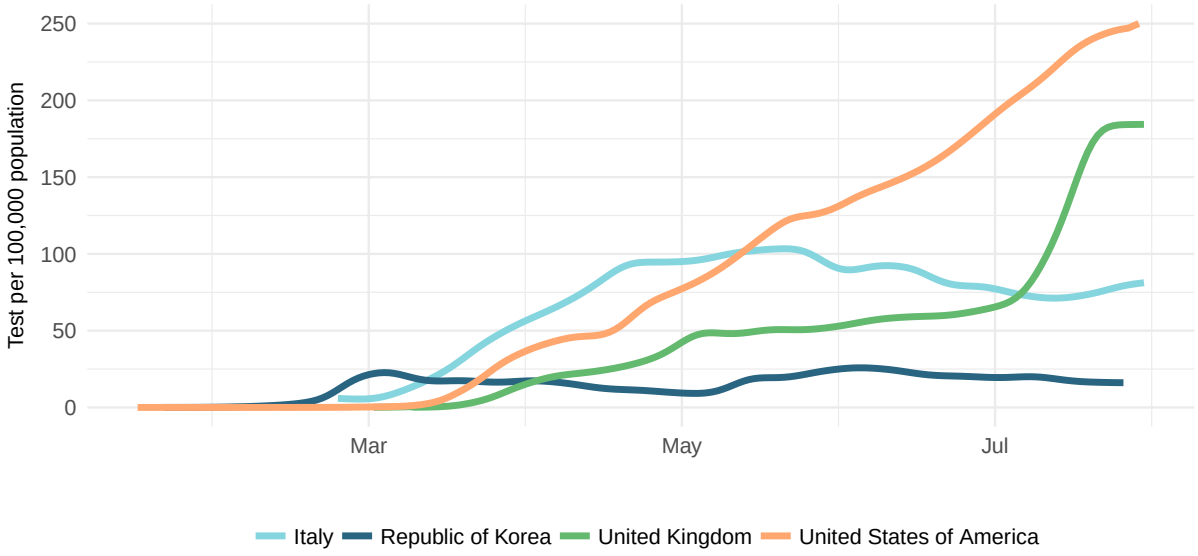


Figure 11b. COVID-19 diagnostic tests per 100,000 people on July 29, 2020

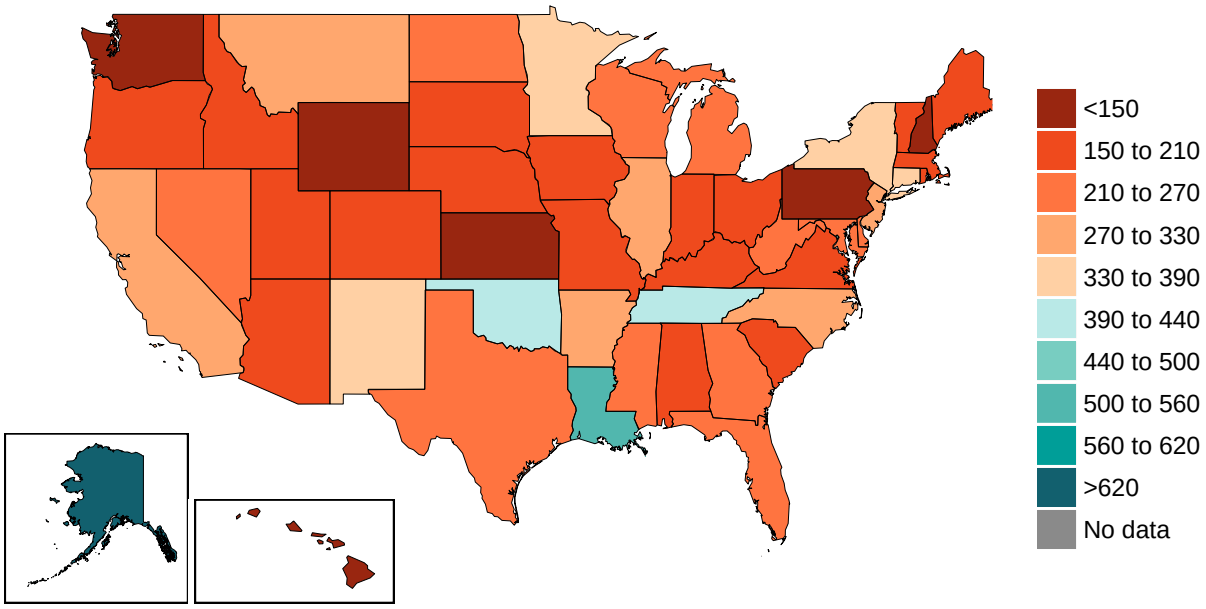
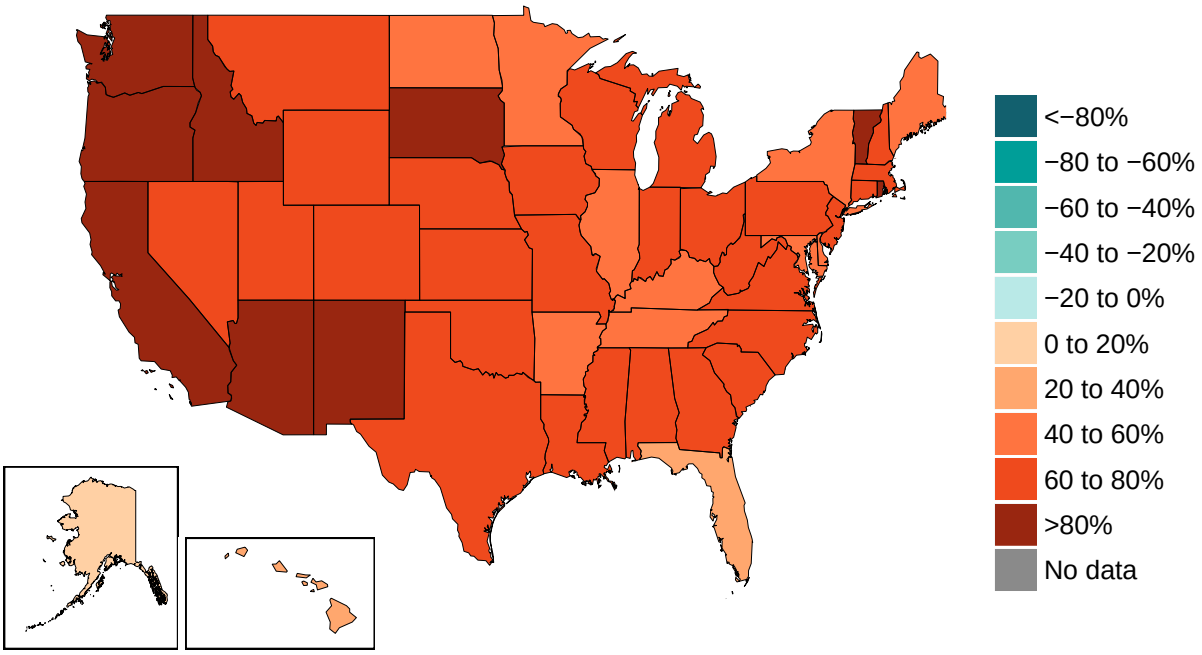


Figure 12. Increase in the risk of death due to pneumonia on February 1 compared to August 1



Projections and Scenarios

Figure 13. Cumulative COVID-19 deaths until December 01, 2020, for three scenarios. The reference scenario is our forecast of what we think is most likely to happen. The mandate easing scenario is what would happen if governments continue to ease social distancing mandates. The universal mask mandate scenario is what would happen if mask use increased immediately to 95%.

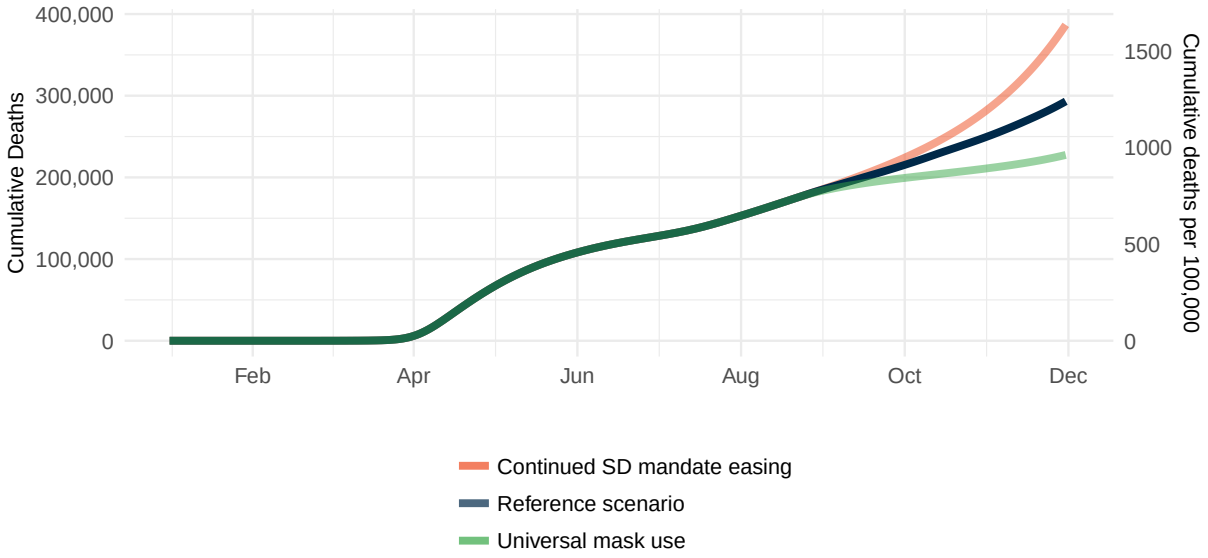


Figure 14. Daily COVID-19 deaths until December 01, 2020, for three scenarios. The reference scenario is our forecast of what we think is most likely to happen. The mandate easing scenario is what would happen if governments continue to ease social distancing mandates. The universal mask mandate scenario is what would happen if mask use increased immediately to 95%.

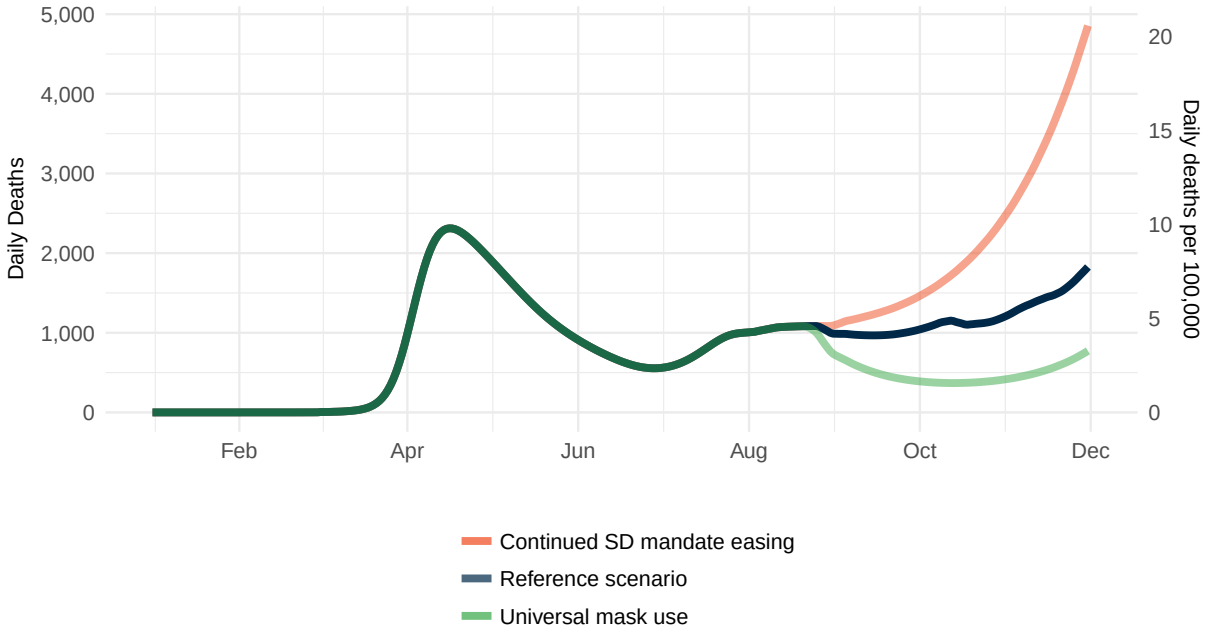


Figure 15. Daily COVID-19 infections until December 01, 2020, for three scenarios. The reference scenario is our forecast of what we think is most likely to happen. The mandate easing scenario is what would happen if governments continue to ease social distancing mandates. The universal mask mandate scenario is what would happen if mask use increased immediately to 95%.

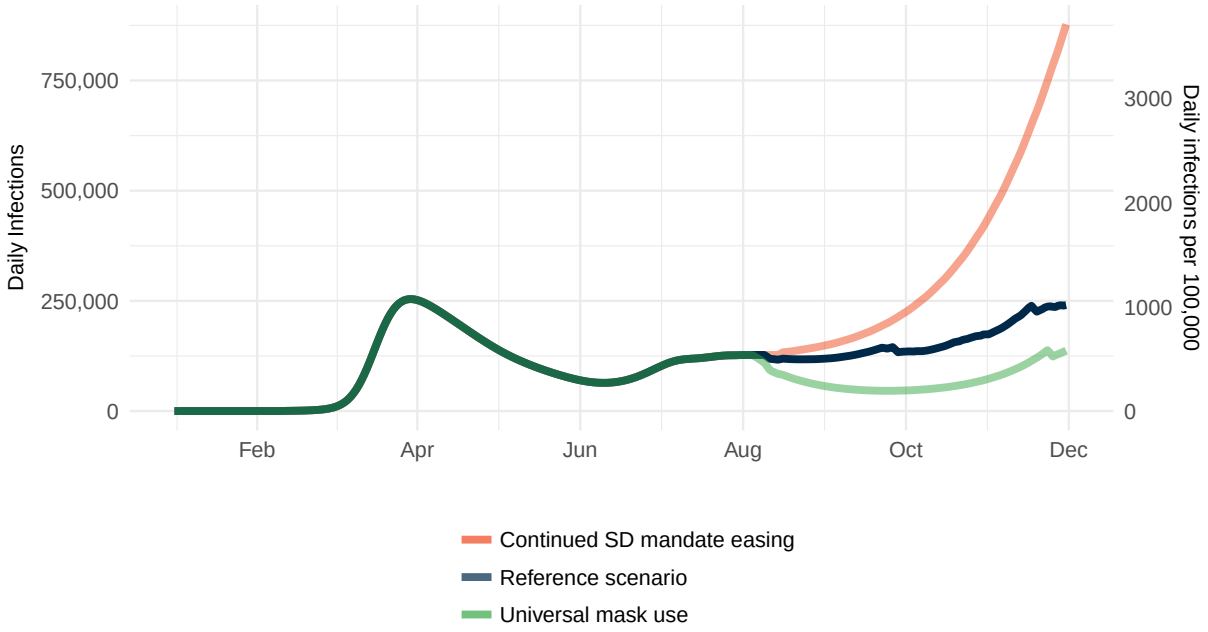


Figure 16. Forecasted percent infected with COVID-19 on December 01, 2020

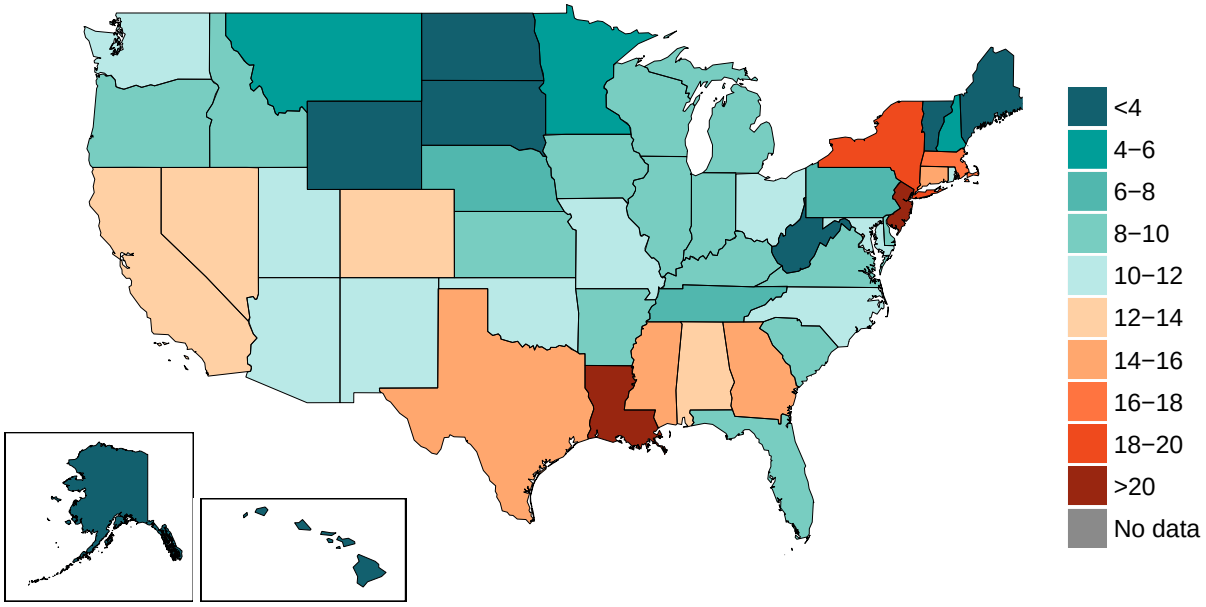


Figure 17. Daily COVID-19 deaths per million forecasted on December 01, 2020, in the reference scenario

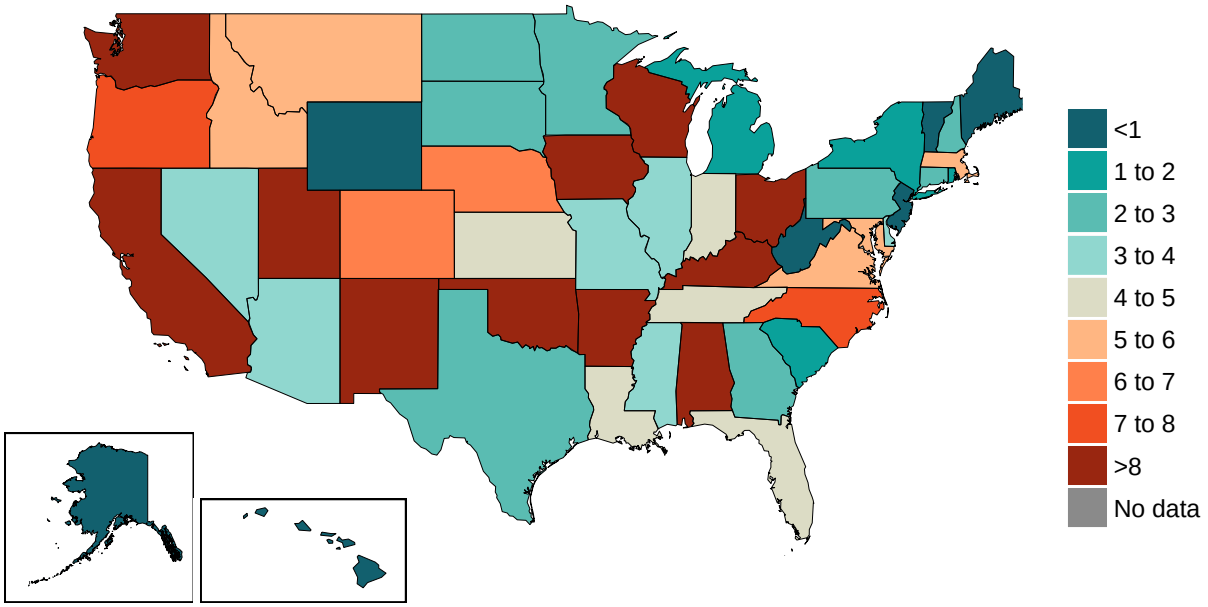


Table 2. Ranking of COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

Cause name	Weekly deaths	Ranking
Ischemic heart disease	10,724.0	1
COVID-19	7,238.4	2
Tracheal, bronchus, and lung cancer	3,965.3	3
Chronic obstructive pulmonary disease	3,765.9	4
Stroke	3,643.4	5